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10/795,968	03/08/2004	Kurt A. Habecker	3600-198-02	8631

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Martha Ann Finnegan, Esq.
Cabot Corporation
157 Concord Road
Billerica, MA 01821-7001

EXAMINER

MCNELIS, KATHLEEN A

ART UNIT	PAPER NUMBER
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1742

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/795,968	Applicant(s) HABECKER ET AL.	
	Examiner Kathleen A. McNelis	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claims Status

Claims 36-65 remain for examination wherein claim 65 is new.

Status of Previous Rejections

The following rejections are withdrawn in view of the ranges cited in the original specification:

- Claims 36-64 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The following rejections are maintained:

- Claims 36-43, 50-56 and 58-61 under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 U.S.C. 103(a) as unpatentable over Chang (U.S. Pat. No. 5,448,447),
- Claims 48, 49, 52, 57 and 62-64 under 35 U.S.C. 103(a) as unpatentable over Chang as applied to claim 36, and
- Claims 36-47 and 49-64 under 35 U.S.C. 103(a) as being unpatentable over WO 98/37248 (WO '248) in view of Chang (U.S. Pat. No. 5,448,447).

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 36-43, 50-56, 58-61 and 65 are rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 U.S.C. 103(a) as unpatentable over Chang (U.S. Pat. No. 5,448,447).

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Chang is applied to claims 36-43, 50-56, 58-61 and 65 as discussed in the 10/30/2006 Office action.

Regarding new claim 65, Chang is applied as discussed in the 10/30/2006 Office action regarding claim 36. New claim 65 differs from claim 36 in that new claim 65 recites a formation voltage of 35 Vf as opposed to 20 Vf. Although Chang does not recite that an electrode is formed by sintering at a temperature of 1100 °C and anodized using a formation voltage of 35 Vf, however the properties of capacitance of at least 65,000 CV/g and DC leakage of less than 5.0 nA/CV would be expected from the powder of Chang subjected to these conditions, since Chang discloses the use of niobium capacitor powder for low leakage capacitors (col. 3 lines 60-68).

Claims 48, 49, 52, 57 and 62-64 are rejected under 35 U.S.C. 103(a) as unpatentable over Chang as applied to claim 36.

Chang is applied to claims 48, 49, 52, 57 and 62-64 as discussed in the 10/30/2006 Office action.

Claims 36-47 and 49-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/37248 (WO '248)¹ in view of Chang (U.S. Pat. No. 5,448,447).

WO '248 in view of Chang is applied to claims 36-47 and 49-65 as discussed in the 10/30/2006 Office action.

Regarding new claim 65, WO '248 (based on U.S. Pat. Family member 6,193,779 to Reichert et al.) discloses forming anodes from tantalum powders having BET specific surfaces ranging from 1.5 to 10 m²/g (col. 3 lines 15-55) which when sintered at temperatures of 1100 to 1300 °C and formed at 16 V produce electrolytic capacitors having a specific charge of 120,000 to

¹ Based on corresponding U.S. Patent: Reichert et al. (U.S. Pat. No. 6,193,779). WO '248 is available as prior art under 35 U.S.C. 102(a) based on the publication date of 27 August 1998.

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180,000 $\mu\text{FV/g}$ at a specific leakage of less than 2 nA/ μFV (col. 4 lines 55-60) and further discloses the more general range of 16 to 30 volts productive of specific charges of 80,000 to 170,000 $\mu\text{FV/g}$ (claim 9). Lacking evidence to the contrary, formation at 35 Vf would therefore be expected to produce a capacitance of at least 65,000 CV/g with DC leakage of less than 5.0 nA/CV.

WO '248 does not disclose that the powder is niobium.

Chang discloses a process for making improved tantalum powder into high capacitance, low leakage electrodes (abstract). The purity of the starting material and processing steps for making the electrodes are the same or similar in Chang as in WO '248. Chang discloses that the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal (col. 3 lines 60-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use niobium as taught by Chang in the sintered, anodized powder electrodes disclosed by WO '248, since Chang discloses that the chemical and physical properties of tantalum and niobium are known by those skill in the art to be sufficiently similar to permit substitution (See M.P.E.P. 2144.06). Therefore, in the absence of evidence to the contrary, one skilled in the art would expect the properties of niobium powder processed by the method disclosed in WO '248 to possess the same or similar characteristics as the tantalum powder claimed in WO '248.

Claim 65 is rejected under 35 U.S.C. 102(a) as anticipated by WO 98/19811.

WO '811 discloses a flaked niobium powder for forming capacitors having a BET surface area of at least about 0.5 m^2/g (abstract) more preferably in the range of about 2.0 to about 5.0 m^2/g (p. 5) where anodes are formed at voltages preferably from about 30 to 50 V and have DC leakage from about 5 nA/CV to 0.5 nA/CV (p. 10). WO '811 discloses that anodes having

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capacitance from 30,000 CV/g to about 61,000 CV/g can be formed using sintering temperatures from about 1200 °C to about 1400 °C (p. 10). Even though WO '811 does not disclose the results of sintering at 1100 °C for 10 minutes and anodized at 35 Vf at 60 °C, since WO '811 teaches that at a sintering temperature of 1300 °C a capacitance of about 60,000 CV/g is produced, and shows that as sintering temperature is decreased, the capacitance increases (Fig. 5), at a sintering temperature of 1100 °C a capacitance of greater than 61,000 CV/g (e.g. at least 65,000 CV) would be expected.

Response to Arguments

Applicant's arguments filed 04/30/2007 regarding maintained rejections have been fully considered but they are not persuasive.

Arguments are summarized as follows:

1. The examiner admits that Chang does not recite any examples using niobium, but still alleges that the substitution of niobium for tantalum would have been obvious.
2. Further, examiner asserts that the particular set of test conditions used to determine capacitance are process limitations.
3. Chang does not recite any examples of niobium or provide any chemical or electrical characteristics of the niobium powder therefore rejection of the claims under 35 U.S.C. 102(b) is improper.
4. The previous Declaration filed with the response on February 24, 2006 and incorporated by reference herein shows that the substitution argument would not have merit and that significantly different properties would be produced.
5. A declaration submitted in an earlier-filed application has been submitted showing that niobium powder would not have been used commercially as a substitute therefore niobium is not a substitute for tantalum as examiner proposes.

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6. An additional declaration by Heather Enman is submitted which shows through extrapolation and additional data that at electrical formation conditions of 20 volts and sinter temperature of 1100 °C the powder would not have the claimed capacitance.
7. WO '248 strictly relates to tantalum and makes no suggestion regarding niobium. Chang is used to show motive to substitute niobium. Examiner has essentially taken the position that it would be obvious to take the electrical properties of one material and apply them to another. Further, Chang discloses only powders below 0.6 m³/gt whereas WO '248 discloses a different surface area.

Responses are as follows:

1. Chang discloses that niobium and tantalum are known substitutes in the art:
"...capacitor powder for low leakage capacitors is produced from base materials which contain at least metal powder...For simplicity purposes, reference shall be made to tantalum metal hereafter even though the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal" (col. 3 lines 60-68). The disclosure of Chang is not limited to specific examples.
2. The instant claims are drawn to the characteristics of a niobium powder after being subjected to various processing steps. Examiner maintains that it is not necessary for the prior art to disclose these specific processing steps in order to anticipate the properties of the powder (see M.P.E.P. 2133).
3. See response to argument 1 above. Even though Chang did not specifically use the term "electrical characteristics", Chang's disclosure of the substitution of niobium for tantalum is in the context of powder for producing low leakage capacitors; therefore examiner does not agree that omission of the word "electrical" has significance. Examiner maintains that the use of niobium powder is clearly within the scope disclosed by Chang, and that the disclosure of Chang is not limited to the specific examples. Further, it is not necessary that Chang to recite each of the properties claimed in the instant invention to anticipate the claims, since when prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present (see M.P.E.P. 2112.01 II).

4. The declaration provided on 02/24/2006 is not sufficient to overcome the rejection for the following reasons:
 - a. The scope is not commensurate with the scope of the claimed invention. Results are shown for powder sintered at 1300 °C and 1400 °C, whereas the instant claims recite 1100 °C.
 - b. The scope is not commensurate with the scope of the claimed invention. Results are shown for formation voltage of 35 whereas the instant claim 36 recites 20 Vf.
 - c. An estimate of results was made by extrapolation from a line drawn between two points. The two points are at 1300 and 1400 °C and the result is estimated at 1100 °C (outside the range of 1300 and 1400 °C). Further, there is no support or rationale for assuming a linear relationship between capacitance and sinter temperature. Examiner therefore contends that the Declaration represents the results of an estimate rather than evidence.
5. The Declaration by Jonathon L. Kimmel (file date 4/30/2007) is not sufficient to overcome the rejection. This declaration is for a different application, as the header cites: Fife et al., application No. 09/632,714. This declaration appears to cite the differences between niobium and tantalum as evidence that they were not considered substitutes for each other in the field of electrode capacitors prior to the invention disclosed by application 09/632,714. Mr. Kimmel has stated the opinion based on knowledge in the area that niobium can not simply be substituted for tantalum especially in the electrode capacitor area. However, the teaching of substitution of niobium for tantalum in the grounds of rejection for the instant application (10/795968) is not a proposal of the examiner but is taught by the prior art. See:
 - a. Response to argument 1 above regarding Chang (U.S. Pat. No. 5,448,447, col. 3 lines 60-68) and page 5 of the 10/30/2006 Office action.
 - b. Additional references disclosing the use of niobium for electrolytic capacitors before the filing date of the instant invention are Otley (U.S. Pat. No. 2,882,233, col. 1 lines 64-68) and WO 98/37248 (see above rejection grounds for new claim 65).

6. The Declaration by Heather Enman, file date 4/30/2007 is not sufficient to overcome the rejection. The declaration presents the results of estimates from test conditions other than recited in the instant claims. Examiner's position is that in order to show that the niobium powder disclosed in the prior art would not have the same characteristics as the claimed powder after sintering at 1100 °C for 10 minutes and anodizing using a formation voltage of 20 Vf at 60 °C (claim 36) or 35 Vf at 60 °C (claim 65), then the powder disclosed in the prior art must be tested at these conditions. Instant claims 36 and 65 recite powder characteristics after sintering at 1100 °C, however the data presented in the Declaration is for powder sintered at 1300 °C. Data was extrapolated from 1300 °C to 1100 °C, presumably by the method discussed in the 02/24/2006 Declaration (extending a line beyond two data points collected respectively at 1300 °C and 1400 °C). Examiner's position is that this is an estimate as opposed to evidence (e.g. test results using the claimed conditions). Further extrapolation was made to estimate results at a formation voltage of 20 volts (whereas 25 V, 30 V and 35 V were tested). Although it is argued that it is reasonable to use linear extrapolation, no basis is presented for why this is reasonable, and it is not evident to the examiner given only two data points to extrapolate temperature and three to extrapolate formation voltage. Conclusory statements are then made regarding the possible results if tantalum were formed using this temperature and voltage, however conclusory statements do not take the place of evidence.
7. WO '248 discloses producing capacitors from tantalum powder having BET surface area essentially as claimed in the instant invention as discussed on pp. 6-7 of the 10/30/2006 Office action. Chang teaches that niobium is a substitute for tantalum in the same field of endeavor; therefore substitution would have been obvious as discussed on p. 7 of the 10/30/2006 Office action. The disclosure in Chang "that the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal" is not limited to the specific surface area ranges used in examples in Chang. Examiner's position is that given the teaching of Chang, one of ordinary skill in the art would have expected

to be able to substitute Nb for Ta in WO '248 and achieve substantially the same results.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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KAM

07/17/2007



ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700